



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0495; Product Identifier 2017-NM-089-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain The Boeing Company Model 777-200 and -300 series airplanes. This proposed AD was prompted by reports of unreliable performance of the water and fuel scavenge system; failure of the fuel scavenge function can cause trapped fuel, resulting in unavailable fuel reserves. This proposed AD would require incorporating operating limitations, or modifying the water and fuel scavenge systems in the fuel tanks and certain electrical panels. We are proposing this AD to address the unsafe condition on these products.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For Boeing service information identified in this NPRM, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet <https://www.myboeingfleet.com>.

You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. Boeing service information is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0495.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0495; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Kevin Nguyen, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3555; email: kevin.nguyen@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section.

Include “Docket No. FAA-2018-0495; Product Identifier 2017-NM-089-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

We have received reports of unreliable performance of the water and fuel scavenge system; failure of the fuel scavenge function can cause trapped fuel, resulting in unavailable fuel reserves. During flight, any water in the fuel can sink to the bottom of the fuel tank. This water can enter the fuel scavenge inlets and can then freeze as it travels from the body center fuel tank into the colder fuel scavenge tubes in the left and right cheek center fuel tanks (outboard of the side of body ribs). The flow of scavenge fuel from the center fuel tank to the main fuel tanks can then decrease or stop. When this occurs, as much as 700 pounds of fuel can remain unavailable during flight. If the fuel quantity decreases to the quantity of the unavailable fuel, then fuel exhaustion will occur, which could lead to subsequent power loss of all engines.

Related Rulemaking

We issued AD 2002-16-15, Amendment 39-12854 (67 FR 54333, August 22, 2002), applicable to certain Boeing Model 777 series airplanes, that requires modification of the supports for the wire bundles of the fuel quantity indicator system (FQIS), and follow-on actions if necessary. AD 2002-16-15 was issued to prevent chafing of the FQIS wiring on surrounding structures and system, which could result in exposure of the bare

conductor in close proximity to structures or other electrically conductive return paths, and potential electrical arcing and explosion in the fuel tank in the event of an additional wiring failure outside the fuel tank. Paragraph (a)(2) of AD 2002-16-15 requires modifying the supports for the FQIS wire bundles in the center fuel tank (including installing spacers on the FQIS wiring support brackets and standoffs, installing a clamp next to the grommet at each tank unit, and replacing the clamp filler O-rings), in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-28-0016, dated April 27, 2000.

This proposed AD would require incorporating operating limitations, or modifying the water and fuel scavenge systems in the fuel tanks and certain electrical panels.

Boeing Special Attention Service Bulletin 777-28-0082, Revision 1, dated May 1, 2017, provides instructions to modify the fuel tanks scavenge system. For airplanes identified as Groups 1 through 4 and 7 through 14 in Boeing Special Attention Service Bulletin 777-28-0082, Revision 1, dated May 1, 2017, a minor adjustment to a certain FQIS wire bundle routing to allow the installation of a new fuel scavenge tube would need to be made. Although this minor adjustment is a deviation from the wire routing layout required by paragraph (a)(2) of AD 2002-16-15, the separation of the wire bundles from chafing and rubbing against a new fuel scavenge inlet tube is maintained, which is the safety objective of AD 2002-16-15.

Because of the difference in the FQIS wire bundle routing required in paragraph (a)(2) of AD 2002-16-15 and routing specified in paragraph (h) of this proposed AD, we have determined that operators of airplanes identified as Groups 1 through 4 and 7 through 14 in Boeing Special Attention Service Bulletin 777-28-0082, Revision 1, dated May 1, 2017, would need an alternative method of compliance (AMOC) to paragraph (a)(2) of AD 2002-16-15. Therefore, paragraph (j)(5) of this proposed AD specifies that

accomplishment of the engine fuel feed system modification specified in paragraph (h) of this proposed AD is acceptable for compliance with the routing requirements of fuel quantity indicating system wire bundle W8011 in the left side of the body center fuel tank specified in paragraph (a)(2) of AD 2002-16-15.

Related Service Information under 1 CFR part 51

We reviewed Boeing Special Attention Service Bulletin 777-28-0082, Revision 1, dated May 1, 2017. This service information describes procedures for changing the water and fuel scavenge systems in the fuel tanks on each side of the airplane. The FQIS wire bundle W8011 adjustment is intended to prevent the wire bundle from rubbing with a new fuel scavenge inlet tube. Additionally, this service information describes procedures for making electrical changes in the main equipment center, including installing additional relays on the P301 and P302 panels, and making wiring changes. Also, this service information describes procedures for installing new electrical load management system 1 (ELMS1) software.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require accomplishment of the actions identified as "RC" (required for compliance) in Boeing Special Attention Service Bulletin 777-28-0082, Revision 1, dated May 1, 2017, except for any differences identified as exceptions in the regulatory text of this proposed AD.

For information on the procedures, see this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0495.

Costs of Compliance

We estimate that this proposed AD affects 111 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

Estimated costs for required actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Incorporation operating limitations	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$9,435

Estimated costs for optional actions

Action	Labor cost	Parts cost	Cost per product
Fuel system modification	207 work-hours X \$85 per hour = \$17,595	\$85,572	\$103,167
P110 and P210 panel changes	2 work-hours X \$85 per hour = \$170	\$0	\$170

According to the manufacturer, some of the costs of this proposed AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all costs in our cost estimate.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator.

Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This proposed AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes to the Director of the System Oversight Division.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

The Boeing Company: Docket No. FAA-2018-0495; Product Identifier 2017-NM-089-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD affects AD 2002-16-15, Amendment 39-12854 (67 FR 54333, August 22, 2002).

(c) Applicability

This AD applies to The Boeing Company Model 777-200 and -300 series airplanes, certificated in any category, as identified in Boeing Special Attention Service Bulletin 777-28-0082, Revision 1, dated May 1, 2017.

(d) Subject

Air Transport Association (ATA) of America Code 28, Fuel.

(e) Unsafe Condition

This AD was prompted by reports of unreliable performance of the water and fuel scavenge system; failure of the fuel scavenge function can cause trapped fuel, resulting in unavailable fuel reserves. We are issuing this AD to prevent loss of capability to scavenge fuel in the center fuel tank, which could lead to fuel exhaustion and subsequent power loss of all engines.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Revision to Operating Limitations

Within 36 months after the effective date of this AD: Revise the operating limitations in the documents specified in paragraphs (g)(1) and (g)(2) of this AD to include the text in figure 1 to paragraph (g) of this AD.

(1) “Fuel System – Loading” section of the “Certificate Limitations” section of the FAA-approved Boeing Model 777 Airplane Flight Manual.

(2) “Loading Limitations” section of the “Fuel Loading Procedures” section of the “Fuel Management” section of the FAA-approved Boeing Model 777 Weight and Balance Control and Loading Manual.

Figure 1 to paragraph (g) of this AD – *Operating limitation*

When center tank fuel is required for the mission, an additional 700 lbs. (320 kg) of reserve fuel must be added to the center tank fuel load.
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(h) Optional Terminating Action

Modifying the fuel tank fuel and water scavenge systems, modifying the fuel jettison system, making electrical changes in the main equipment center, modifying the

wiring in the ELMS P110 and 210 panels, and installing new electrical load management system 1 (ELMS1) software, by doing all applicable actions identified as “RC” (required for compliance) in, and in accordance with, the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-28-0082, Revision 1, dated May 1, 2017, is an optional terminating action to the requirements of paragraph (g) of this AD.

(i) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraph (h) of this AD, if those actions were performed before the effective date of this AD using Boeing Special Attention Service Bulletin 777-28-0082, dated May 26, 2016.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO branch, send it to the attention of the person identified in paragraph (k)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) For service information that contains steps that are labeled as RC, the provisions of paragraphs (j)(4)(i) and (j)(4)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled “RC Exempt,” then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator’s maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(5) For airplanes in Groups 1 through 4, and 7 through 14, as defined in Boeing Special Attention Service Bulletin 777-28-0082, Revision 1, dated May 1, 2017: Accomplishment of the engine fuel feed system modification specified in paragraph (h) of this AD is acceptable for compliance with the routing requirements of fuel quantity indicating system wire bundle W8011 in the left side of the body center fuel tank specified of in paragraph (a)(2) of AD 2002-16-15, provided all provisions of AD 2002-16-15 that are not specifically described in this paragraph remain fully applicable and are complied with accordingly.

(k) Related Information

(1) For more information about this AD, contact Kevin Nguyen, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3555; email: kevin.nguyen@faa.gov.

(2) For Boeing service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone

562-797-1717; Internet <https://www.myboeingfleet.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

Issued in Des Moines, Washington, on May 23, 2018.

James Cashdollar,
Acting Director,
System Oversight Division,
Aircraft Certification Service.

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